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ABSTRACT

Investigated were the effects of sex, ability and training method on the musical instrument playing ability of 16 institutionalized severely and profoundly retarded persons ages 7 to 20 years. Ss were randomly assigned to one of four treatment groups, and the time required to reach criterion playing a familiar tune was recorded. Data indicated that with training some severely and profoundly retarded persons can learn elementary music skills. Sex and training method produced no significant effects, although ability was found to be an influencing factor. (CL)

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Music Training for Severely and Profoundly Retarded Individuals

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Abstract

The present research was designed to investigate the ability of severely and profoundly retarded institutionalized children and adolescents to learn to perform on a musical instrument and the influence of three factors: sex, ability, and type of training on the rate at which they learn music performance skills. It was found that with training on appropriate instruments some severely and profoundly retarded persons can in fact learn elementary musical skills. Even though ability was found to be an influencing factor, sex and type of training produced no significant effects.

MUSIC TRAINING FOR SEVERELY AND PROFOUNDLY RETARDED PERSONS

Severely and profoundly retarded individuals are usually confined to an institution as the most effective solution our society has consistently supported in caring for their needs. To the distress of many who observe the severely retarded, a limited degree of self-maintaining behavior is evidenced. The range of abilities as well as social interaction of the severely and profoundly retarded are minimal. Wiesen and Watson (1967) indicate that such subjects show little meaningful interaction with either children or adults. Eby (1943) describes the behavior of severely and profoundly retarded as constituting an unnatural routine. Certainly, the casual observer of the skills and social interaction of severely and profoundly retarded may conclude that this population holds little promise for developing any meaningful approaches to self-fulfillment.

In addition to the limited intellectual potential of these persons, the limited expectations of others regarding their learning ability serves as a great deterrent to their acquisition of meaningful skills. There are some expressions of concern that we gain more insight into the social and self-help capabilities of such persons. Dingman (1968) makes a plea for further research into these areas. Sarason, et. al. (1958), Hobb (1968), and Braginsky and Braginsky (1971) all stress the lack of developmental stimulation provided by a barren institutionalized environment. Badt (1958), Skeels (1965), Zigler (1966), and Coles (1972) also stress the fact that severely retarded institutionalized persons may receive inadequate physical, emotional, intellectual, and social stimulation. Despite these concerns,

the reports of efforts to train the severely and profoundly retarded to become more responsive to stimulation are very limited.

The major intent of this study is to investigate the learning capabilities of severely retarded individuals. It is likely that acquisition of meaningful musical skills would decrease the monotonous existence of these individuals. It seems that such skill acquisition could lead to greater social interaction among this population. For several reasons, musical training was chosen as the medium to provide stimulation for these young persons. There is ample evidence to indicate that severely and profoundly retarded persons can learn to respond to music stimulation. Graham (1968), Harrison (1966), and Luckey et. al. (1967), report that music bears a relationship to the response patterns of severely and profoundly retarded subjects. Jorgenson and Parnell (1970) and Isern (1960) also stress the importance of music as mental and social stimulation.

Rogge (1952) indicates that music serves as an effecitve means of human non-verbal communication. It is evident that the severely retarded do suffer from a lack of effective verbal communication. Weigel (1962) has suggested that music should be an important experience for the retardate because it is a meaningful form of self-expression. Gaston (1968) stresses the significance of music to the development of each individual's potential for humanness. Schapiro (1955) stresses that the active production of music enables the child to appreciate his own capabilities and thus exerts a positive influence on the development of his self-concept. Hyde (1968) and Marvin (1968) further explain that the extensive attention given to music in our society suggests that music has inherent value to humanity.

The basic issues under investigation in this study relate to (1) the ability of severely and profoundly retarded persons to learn a musical

performance task; (2) relationships between musical performance, the ability and sex of subjects, and the type of training utilized.

Method

Subjects: The subjects were 96 severely and profoundly retarded children and adolescents assigned to a training program in a large state institution. From this total sample, 8 males and 8 females were selected and assigned randomly to each of four treatment groups. The remaining 32 persons constituted the control group for the study. All subjects had been institutionalized for several years in a state institution for the mentally retarded. None were expected to return to their homes or communities and were solely dependent upon the institutional staff for fulfillment of their personal and social needs. The subjects ranged in age from 7 to 20 years with a mean age of approximately 13. There was insufficient psychometric data available to assign a rigorous score for intellectual ability to each subject. In lieu of this data, professional training staff who had observed and worked with these subjects for several months rated each subject as either high or low in learning ability. It was understood by these professional staff members that a rating of "high learning ability" should be assigned only to those individuals that they believed could master the music task. Eighteen males and eighteen females received unanimous placement in the high ability group by the three professional staff members. Twenty four of these high ability subjects were assigned randomly within the four treatment groups.

Procedure: The music task required the subjects to learn to play a simplified version of "Hot Cross Buns."

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Insert Figure 1 about here
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A xylophone with keys F, G, and A was the musical instrument used. The entire song consisted of striking the xylophone 17 times in proper note and rhythm sequence. Eighty percent or greater correct performance on one complete trial was the established criterion.

The four experimental groups differed slightly as follows:

E1 - Xylophone with all white keys and music trainer sang song each time.

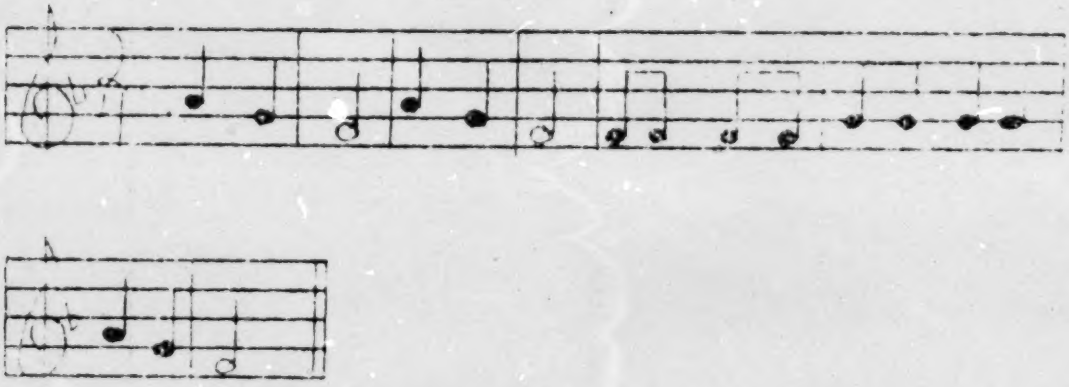
E2 - Same as E1 except trainer did not sing.

E3 - Xylophone with one red, one yellow, and one blue key and music trainer sang song each time.

E4 - Same as E3 except trainer did not sing.

A study reported by Fitzpatrick (1959) suggested that a familiar voice may have as much influence on the performance of severely retarded as either music or rhythm. Thus, it was decided that treatment should be varied to measure the possible effect of a familiar voice on this learning task. Weber (1963) and Doolin (1966) suggest that color may be used effectively in the music curriculum of retarded pupils. Thus, the variation in color was employed to determine whether the severely retarded might use color cues as an aid in learning this musical task. Each subject received an individual 10-minute training session twice a week for six months for a total of 48 training sessions, or until he met criterion. The training procedure followed three simple steps for each subject: (1) music trainer played the song (2) music trainer held subjects hand while directing him/her to strike the appropriate notes in rhythm (3) music trainer encouraged subject to play the song independently. Where the treatment called for the music trainer to sing, singing accompanied each attempt to play the song. The same skilled musician provided

Figure 1. HOT CROSS BUNS*



*This is the tune which the subjects were taught to play. It was also used to evaluate the subjects' performance.

training for each subject and none of the subjects had previous experience at attempting to play a musical instrument.

Results and Discussion

The results of this study are reported in Table 1. The ANOVA resulted in F scores for training and ability significant at the .01 level.

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Insert Table 1 about here
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The F-value of 2.053 for sex indicates that this factor was not significant in the total time required to learn the assigned music tasks. Ability, as judged by the professional staff members who had observed and worked with these subjects for several months, was significantly related to the learning capabilities of these subjects. Mean scores for each group were examined and are reported in Table 2. The Duncan Multiple Range Test was used to

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determine the direction of significant differences. The mean scores reported in Table 2 indicate the average number of months taken to reach criterion on the music task. As can be seen from inspection of this table, each experimental group succeeded in learning the music task whereas the control group obviously did not have practice on this task. Males and females did not differ significantly in the total time required for each group to master the assigned task. The 24 subjects of the treatment groups who were rated as "high ability" by the professional staff mastered the music task much more quickly than did the remaining 40 subjects.

Table 1

ANALYSIS OF VARIANCE OF TIME REQUIRED TO LEARN THE ASSIGNED MUSICAL TASK.

Source	DF	SS	MS	F
Training	4	66.71	16.67	7.249**
Sex	1	4.72	4.72	2.053
Ability	1	114.24	114.24	49.650*

*$F_{1,72}$ P. .01

**$F_{4,72}$ P. .01

Table 2.

Mean Scores of Months Required

to Learn Assigned Music Task

Independent Variables	Group	Means	Significantly Different Groups
Training			
E_1 - White keys & trainer singing	1	5.29	5
E_2 - White keys & no singing	2	5.23	5
E_3 - Varied colored keys & trainer singing	3	4.81	5
E_4 - Varied colored keys & no singing	4	5.26	5
Control group	5	7.00*	1,2,3,4
Sex			
Male	1	5.76	None
Female	2	5.28	None
Ability			
High	1	4.33	2
Low	2	6.71	1

*A mean of seven indicates that the subject did not meet criterion during the six months allotted for the study.

There were many gratifying aspects of this 6-month study with severely retarded youngsters, only a minute part of which is clearly indicated by the statistical analysis of results. Many of the staff were skeptical that these subjects could be simulated to respond to anything as meaningful as musical tone and rhythm. It was a learning experience for the professional and para-professional workers to learn that these subjects can maintain an interest in mastering a simple music task. The music lesson became an experience that the subjects anticipated and in which they were motivated to succeed. Contrary to some current opinions that a population so limited in intellectual ability can learn effectively only through operant conditioning "techniques," no such structured reinforcement schedule was used. Subjects were obviously rewarded by interaction with the music trainer whom they respected and by the opportunity to try to create the music they had heard him produce. However, no special effort was made to reward the subject for correct performance. Some of the subjects went ahead to learn other simple tunes and most of them developed considerable interest in music. Their efforts to participate in musical activities provide many hours of meaningful entertainment in an often too routine existence. Daily musical programs remain very important to this group of retarded individuals. The cottage staff who supervised the daily toileting, feeding, and other self-care needs of this group have taken a renewed interest in the learning potential of this group. As might be expected, this higher level of expectation has helped in the development of greater self-care skills.

It is also encouraging to note that the observation of behavior of these individuals by professional staff members can result in valid predictions of their ability to learn. As mentioned previously, the lack of available

psychometric instruments to measure adequately the intellectual potential of the severely retarded limits understanding of this group. It seems likely that careful observation by professional workers may be a useful supplement as we continue to gain more valid and reliable psychometric data on this population.

It was interesting to note throughout this experiment that individual response styles to stimulation varied considerably. Some individuals moved quickly to criterion performance whereas others took the full six months to reach that level of achievement and some never succeeded. This study focused on acquisition of a specific skill so it is not possible to report that significant, positive changes in social interaction occurred. Many of the staff expressed a belief that these subjects were more gregarious after some experience with the music training. The impact of learning such a skill can only be hypothesized as producing growth in social awareness until it is investigated empirically.

Caution must be used in generalizing beyond those involved in this study. It is likely that the retarded individuals of this study are similar to most institutionalized persons classified as severely or profoundly retarded. However, the music trainer was a very patient professional who believed strongly in the potential of the subjects to succeed. In any event, this study provides additional evidence that the severely retarded are unique individuals with a potential for learning new tasks.

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